HP OpenView

Storage Mirroring application notes
High availability for Internet Information Server

Legal and notice information

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Introduction

Internet Information Server (IIS) is a standards-based Web and File Transfer Protocol (FTP) server from Microsoft. IIS is designed to operate on the Windows network operating system and is an Internet standards-compliant HTTP (Hypertext Transfer Protocol) server that also includes FTP and several other valuable Web and FTP-related services. IIS permits the user to fully design, create, deploy, and manage Web sites of any size.

This document describes the steps necessary to configure Storage Mirroring to provide high availability for Windows servers running IIS. These procedures allow a secondary server to assume the identity and role of a failed IIS server while maintaining the availability of IIS services with minimal disruption or data loss.

To complete these instructions, install IIS and Storage Mirroring, and configure Storage Mirroring for replication and failover. Due to the complexities of these applications, this document is intended for network administrators with experience installing, configuring, and maintaining network applications including Storage Mirroring and IIS.

Requirements

- Two servers that meet one of the following operating system requirements:
  - IIS 4.0—If you will be using IIS version 4.0, you will need Microsoft Windows NT 4.0 with Service Pack 4 or higher
  - IIS 5.0—If you will be using IIS version 5.0, you will need Microsoft Windows 2000
  - IIS 6.0—If you will be using IIS version 6.0, you will need Microsoft Windows 2003

NOTE: The two servers should both be running the same operating system.

- It is recommended that both source and target servers be member servers. You may experience problems with promotion and demotion during failover if either of the machines are Primary or Backup Domain Controllers.
- Both servers must be connected to the same physical network
- One copy of Microsoft Internet Information Server
- Two licensed copies of Storage Mirroring
- The Storage Mirroring `Chngname` utility

NOTE: The `Chngname.exe` utility is available in the Tools directory when you download the product from the following web site: http://www.openview.hp.com/downloads/downloads.html.

Naming conventions

Storage Mirroring provides failover capabilities for multiple source (production) servers to be monitored by and failed over to a single target (high availability) server. When a source server fails, Storage Mirroring causes the target server to add (or optionally replace) the failed server's name and IP address. For most applications, this provides nearly instantaneous failover, with no need to reboot the target server, and it allows server-based applications already running on the target server to continue without interruption. When Storage Mirroring performs failover by adding the failed server's name to the existing name of the target, this is known as multi-naming since the target machine is actually broadcasting multiple names on the network and responding for multiple IP address.

Unlike most client-server applications, IIS is sensitive to the primary name of the server on which it is running. If it was installed on server SOURCE, and server TARGET adds the name SOURCE, IIS will not run because the server's primary name is still TARGET. However, with the Storage Mirroring `Chngname` utility, you are provided the ability to temporarily change the primary name on the target to make failover of name-sensitive services, such as IIS, possible.

Install software on the source

1. Install IIS on the source, if it is not already installed.

2. Record the drive and directory where you installed IIS.

IIS Installation Drive and Directory: _____

3. Install Storage Mirroring on the source machine using the installation defaults. See the *HP OpenView Storage Mirroring getting started guide* for details.

Install and configure software on the target

1. Remove the source machine from the network. This step will allow the target machine to use the source's identity for this section.

2. Change the active server name of the target to the name of the source using the `Chngname.exe` utility.

   Select **Start**, **Run** and enter the command:

   `<drive>:\<directory>\chngname /s source_name`

   For *source_name*, enter the name of your source.

3. Now that the target's active server name is identical to the source's name, install IIS on the target using the same drive and directory specifications recorded in step 2 of the previous section.

> △ **CAUTION:** When prompted, *do not* reboot the target machine at this time.

4. In Control Panel, Services, set the IIS services to manual startup. This step allows the Storage Mirroring failover and failback scripts that you will be creating later to control the starting and stopping of the IIS services.

   - HTTP SSL Service (IIS 6.0 only)
   - Content Index (IIS 4.0 only)
   - FTP Publishing Service
   - IIS Admin Service
   - Microsoft NNTP Service
   - Microsoft SMTP Service
   - World Wide Web Publishing Service

NOTE: Note which services are specific to the version of IIS that you are using. Not all services specific to an IIS version may be applicable to your environment.

5. Manually configure all web sites which are configured on the source. This includes IP address assignments, virtual directories, security, etc.

NOTE: If any configuration changes are later made to the web sites on the source, the same configuration changes must be manually made on the target.

6. Copy any SSL certificates present on the source machine to the IIS installation on the target.

7. Install Storage Mirroring on the target machine using the installations defaults. See the *HP OpenView Storage Mirroring getting started guide* for details.

CAUTION: When prompted, *do not* reboot the target machine at this time.

8. Modify the Storage Mirroring service so that it interacts with the desktop. Use steps a for Windows 200x or steps b for Windows NT.

   a. Select **Start**, **Programs**, **Administrative Tools**, **Services** and double-click the Storage Mirroring service.

   b. Select the **Log On** tab and mark the check box **Allow Service to Interact with Desktop**.

   c. Click **OK**.

   d. In **Control Panel**, **Services**, double-click the Storage Mirroring service.

   e. Mark the check box **Allow Service to Interact with Desktop**.

   f. Click **OK**.

9. Change the active server name of the target back to its original identity by using the `Chngname.exe` utility. Select **Start**, **Run** and enter the command:

   ```
   <drive>:\<directory>\chngname /t
   ```

10. Reconnect your source machine back to the network.

11. Reboot the target machine.

Configure and begin mirroring and replication

1. Select **Start**, **Programs**, **Storage Mirroring**, **Management Console**.

2. Double-click the source machine to log on.

3. Right-click on the source and select **Properties**.

4. On the Source tab, enable **Block Checksum All Files on a Difference Mirror** and click **OK**.

5. Right-click your source machine and select **New**, **Replication Set**. Enter the desired name for the replication set.

6. Select the IIS data you want to protect. It is not necessary to replicate the application files (`.dll` and `.exe` files) since they already exist on the target machine, so you will probably only include the IIS data directories. If you have any IIS data stored on other drives, be sure to select those directories as well.

NOTE: The replication set must include all directories that are used by any web sites.

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7. Right-click the replication set name and select **Save** to save the replication set.

8. Drag and drop the replication set onto the target. The Connection Manager dialog box opens.

9. The **Source Server**, Target Server, **Replication Set**, and **Route** fields will automatically be populated. If you have multiple IP addresses on your target, verify the **Route** field is set to the correct network path. For detailed information on connecting a source and target, see the Storage Mirroring user's guide.

10. Select **One to One** to map the replication set data from the source to an identical volume/directory structure on the target.

11. Click **Connect** to start the mirror and replication processes.

Configure failover and begin failure monitoring

1. If a failure occurs, you will want to have the IIS services start on the target machine automatically. To do this, create a batch file called `postover.bat` using the sample batch file below. Save the batch file to the same directory where your Storage Mirroring files are installed.

POSTOVER.BAT

```
rem  This command temporarily changes the name of the server. You will need to replace
<drive>:\<directory>\
rem  with the location of your Storage Mirroring script files and replace source_name with the name
of the source machine.
rem  The Chngname utility should be located in the same directory as the Storage Mirroring script files.
<drive>\<directory>\chngname /s source_name

rem  You may need to modify which services are started depending on your version of IIS.
net start "HTTP SSL Service"
net start "IIS Admin Service"
net start "Content Index"
net start "FTP Publishing Service"
net start "Microsoft SMTP Service"
net start "Microsoft NNTP Service"
net start "World Wide Web Publishing Service"

rem  This command changes the target name back to its original name. You will need to replace
<drive>:\<directory>\
rem  with the location of your Storage Mirroring script files. The Chngname utility should be located
in the same
rem  directory as the Storage Mirroring script files.
<drive>\<directory>\chngname /t
```

2. After a failure is resolved, you will be ready to bring your source back online. At this time, you will want to stop the IIS services on the target automatically. To do this, create a batch file called `preback.bat` using the sample batch file below. Save the batch file to the same directory where your Storage Mirroring files are installed.

PREBACK.BAT

```
rem  You may need to modify which services are started depending on your version of IIS.
net stop "HTTP SSL Service"
net stop "Content Index"
net stop "FTP Publishing Service"
net stop "IIS Admin Service" /y
```

3. Select **Start**, **Programs**, **Storage Mirroring**, **Failover Control Center**.

4. Select the target machine from the list of available machines. If the target you need is not displayed, click **Add Target**, enter the machine name, and click **OK**.

5. To add a monitor for the selected target, click **Add Monitor**. Type the name of the source machine or click **Browse** to select it, and click **OK**. The Monitor Settings window will open.

6. In the Monitor Settings window, select the IP address that is going to failover.

7. Click **Scripts** and insert the scripts that were created earlier.

8. Click **OK** to go back to the Monitor Settings dialog box.

9. Click **OK** to begin monitoring the source machine.

In the event of a source machine failure, your target machine is now ready to stand in for your source. For detailed information on monitoring failover, see the *HP OpenView Storage Mirroring user's guide*.

Restoring your IIS data

If your source experiences a failure, such as a power, network, or disk failure, your target machine will stand in for the source while you resolve the source machine issues. During the source machine downtime, data is updated on the target machine. When your source machine is ready to come back online, the data is no longer current and must be updated with the new data on the target machine.

1. Make sure the source machine is offline and disconnected from the network.
2. Resolve the source machine problem that caused the failure.

NOTE: If you must rebuild your hard drive, continue with step 3. If you do not need to rebuild your hard drive, verify that any Storage Mirroring connections are disconnected and then continue with step 6.

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3. Install Windows and the appropriate service pack, if necessary. Since your source machine is not connected to the network, go ahead and use the source's original name and IP address.
4. Install Storage Mirroring using the same installation defaults.
5. Install IIS using the same drive and directory settings recorded earlier.
6. In **Control Panel**, **Services**, set the IIS services to manual startup.
   - HTTP SSL Service (IIS 6.0 only)
   - Content Index (IIS 4.0 only)
   - FTP Publishing Service
   - IIS Admin Service
   - Microsoft NNTP Service
   - Microsoft SMTP Service
   - World Wide Web Publishing Service
7. **Verify that IIS is not running on the source**. The IIS services must not be running at this time. Depending on the type of failure, your services may be set to manual startup, but could still be running. **Stop your IIS services and set them to manual startup**.
8. On the target machine, select **Start**, **Programs**, **Storage Mirroring**, **Failover Control Center**.
9. Select the target machine that is currently standing in for the failed source.
10. Select the failed source and click **Failback**.

    The pre-failback script entered during the failover configuration stops the IIS services on the target so that no additional changes can be made.
11. You will be prompted to determine if you want to continue monitoring the source server. Do not choose **Continue** or **Stop** at this time.
12. Connect the source machine to the network.
13. After the source is back online, select whether you want to continue monitoring the source machine (**Continue** or **Stop**).
14. To begin the restoration process, open the Storage Mirroring Management Console and select **Tools**, **Restoration Manager**.

NOTE: You can also run the Storage Mirroring DTCL automated restoration script, which can be found in the *HP OpenView Storage Mirroring user's guide*, to complete the remaining steps in this section.

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15. Complete the appropriate fields as described below.
    - **Original Source**—The name of the source machine where the data originally resided.
    - **Restore From**—The name of the target machine that contains the replicated data.
    - **Replication Set**—The name of the replication set to be restored.
    - **Restore To**—The name of the machine where the data will be restored. This may or may not be the same as the original source machine.
16. Identify the correct drive mappings for the data and any other restoration options necessary. For detailed information on the restoration options, see the *HP OpenView Storage Mirroring user's guide*.
17. Verify that the selections you have made are correct and click **Restore**. The restoration procedure time will vary depending on the amount of data that you have to restore.
18. After the restoration is complete, start the IIS services on the source machine.
19. Reestablish the Storage Mirroring IIS replication set connection.

At this time, your data is restored back to your source machine, the source machine is again the primary IIS server, and, if you selected to continue failover monitoring, the target is available to stand in for the source in the event of a failure.